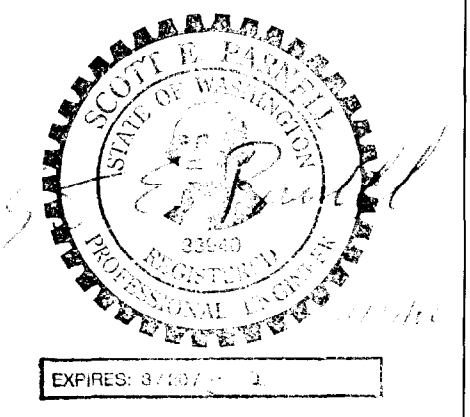
EXHIBIT E

TECHNICAL SPECIFICATION

FOR THE

SURVEY AND DECONTAMINATION STATION



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HANFORD		**RICHLAND ENVIRONMENTAL RESTORATION PROJECT**	JOB NO. 22192			
			SPECIFICATION NO. 0100B-SP-M0001			
			SHEET 1 of 9			

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TECHNICAL SPECIFICATION

FOR THE

SURVEY AND DECONTAMINATION STATION

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TECHNICAL SPECIFICATION

FOR THE

SURVEY AND DECONTAMINATION STATION

1.0 GENERAL

1.1 SUMMARY

This specification establishes quality and workmanship requirements and defines how quality is measured for the portable Survey and Decontamination Station specified herein and in applicable Subcontract requirements. Reference is directed to Exhibit "D", Scope of Work for specific services required.

1.2 ABBREVIATIONS

The abbreviations listed below, as used in this specification, shall have the following meanings:

ALARA	as low as reasonably achievable
ASCE	American Society of Civil Engineers
DOP	dispersed oil particulate
ERDF	Environmental Restoration Disposal Facility
HEPA	high efficiency particulate air
IES	Illuminating Engineering Society
NEC	*National Electric Code*
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
QA/QC	Quality Assurance/Quality Control
SSRS	Subcontractor Submittal Requirements Summary
UL	Underwriter's Laboratories, Inc.

1.3 CODES, STANDARDS, LAWS, AND REGULATIONS

Unless otherwise approved or shown, the following codes, standards, laws, and regulations of the latest issue at the time of the bid shall apply to establish minimum requirements for the Survey and Decontamination Stations. Referenced test methods, specifications, and recommended practices are to be used to verify material properties and identify acceptable practices. Failure to identify applicable codes or standards does not negate the requirement to be knowledgeable of or to comply with applicable codes, standards, laws, and regulations.

10 CFR 835 Occupational Radiation Protection

ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures

NFPA 101 Life Safety Code

NFPA 101 National Fire Protection Association

1.4 TECHNICAL SUBMITTALS

All required submittals stated herein or elsewhere in this specification will be submitted to the CONTRACTOR in accordance with Exhibit "I", Subcontractor Submittal Requirements Summary (SSRS). Submittals that do not meet the project requirements will be rejected. Rejected submittals shall be resubmitted in a timely manner.

2.0 MATERIALS AND EQUIPMENT

2.1 GENERAL

A portable Survey and Decontamination Station shall be provided for identifying and removing radioactive contamination found on vehicles, containers, equipment and other items. Attachment 1 provides the standards for release for radioactive shipment and free release that shall be met. For release for shipment, values listed as "Removable" shall be met on exterior surfaces. For free release, values listed under both "Removable" and "Total" shall be met on all surfaces.

The portable Survey and Decontamination Station shall provide all-weather protection so that containers and equipment may be presented for survey in a condition such that they can be efficiently surveyed (dry and free of snow, ice, water, and mud, etc.). The Survey and Decontamination Station shall provide provision to maintain radiological survey instrumentation between –17.8 and 46.1 C (0 and 115 F) during operations.

Provisions shall be made for collecting all rinsate used or generated in the decontamination process. Rinsate shall be collected and may be processed for reuse/recycle or sampled, treated, and disposed of (i.e. dust suppression on contaminated waste) in accordance with the SUBCONTRACTOR's Earthwork or Excavated Materials Handling Plan.

Provide a reflective identification sign that reads "SURVEY AND DECONTAMINATION STATION" for each end of the station. Lettering shall be clearly legible from a distance of 20 m (65.6 ft). Survey and decontamination operations, when conducted adjacent to the work area, are exempt from this requirement.

Submittals for the Survey and Decontamination Station shall be provided in accordance with Exhibit "I".

All materials and equipment shall be new, unused, suitable, and rated for the service intended.

The reliability and quality of components and systems provided shall be evaluated to ensure optimized operation. The operating philosophy shall be evaluated based on the ability to maintain the workers exposure to environmental, industrial, and radiological hazards as low as reasonably achievable (ALARA).

2.2 EQUIPMENT REQUIREMENTS

If a structure or tent is used for weather protection it shall be designed in accordance with the American Society of Civil Engineers (ASCE) 7. Commercial coaches, temporary structures or tents shall be capable of withstanding sustained wind speed of 31.4 m/s (70 mph) and 38.1 m/s (85 mph) peak gusts, exposure Category C, importance factor 1.0, Seismic Zone 2B. Temporary structures or tents shall be designed for snow loading not less than 122 kg/m^2 (25 lb/ft^2) in accordance with WAC 296-150A-300. Commercial coaches shall be designed for snow loading not less than 146 kg/m^2 (30 lb/ft^2) in accordance with WAC 296-150C-0860. Fabric for tent structures shall be fire retardant.

Dry storage capacity for survey instruments and supplies shall be provided where Survey and decontamination activities occur.

Equipment, such as industrial wet/dry type vacuums, shall be provided to remove and collect contaminated material located on container or equipment exterior. Vacuums shall have high efficiency particulate air (HEPA) filter capability. SUBCONTRACTOR shall provide evidence of initial dispersed oil particulate (DOP) testing and subsequent testing as required.

Adequate ventilation shall be provided to prevent the accumulation of exhaust and fumes from container handling vehicles, earthwork equipment, and other equipment as applicable. The ventilation system shall incorporate an exhaust hood, or similar, and duct work which exhausts diesel exhaust out of the Survey station. The hood should be positioned immediately above the location of the truck's exhaust stack where the truck stops in the station.

All components shall be protected from freezing down to an ambient temperature of -24° C (-10°F) with a 6.7 m/s (15 mph) wind. All tanks shall be suitable for outdoor use, be vented to the atmosphere, and be designed to permit complete drainage.

Equipment shall be provided that allows access to all container/equipment surfaces for decontamination and radiological survey purposes. Heavy duty work platforms and railings with metal grating stairs shall be OSHA compliant.

Subcontract shall maintain on site records and make available for review at any time the following items:

- Manufacturer's descriptive literature (e.g., catalog cuts, material and/or component specification information, handling instructions, verification that materials provided comply with specification requirements)
- Drawings (layout and detailed as applicable)
- Structural calculations stamped by a professional engineer registered in Washington State (as an equivalent, pre-engineered components that have been designed by a registered professional engineer to requirements that meet or exceed the design requirements stated in the specifications will be accepted)
- Assembly/erection instructions
- Start-up plan and maintenance (including recommended spare parts list)
- Storage requirements.

2.3 ELECTRICAL REQUIREMENTS

A minimum of 115 volt AC, 30 Amp power shall be provided to operate air sampling equipment and sample drying ovens supplied by others. Additional power shall be provided, as required, to operate heaters, vacuums, electric fans, and lighting as supplied. The power supply system(s) and components shall meet all National Electric Code (NEC) requirements, be Underwriter's Laboratories, Inc. (UL) listed, suitable for outdoor use, and installed according to manufacturer's recommendation. Electrical materials and methods shall comply with latest edition of NEC.

SUBCONTRACTOR shall provide infrared type hanging heaters. Placement of heaters shall be optimized to provide warming during cold weather. The heaters shall meet NEC requirements, be UL listed, suitable for use in a moist/wet environment, and installed according to the manufacturer's recommendation. Heaters must be provided with guards to protect elements from being damaged during operations.

Electrical component descriptive literature (e.g. catalog cuts, material and/or component specification information, handling instructions, verification that materials provided comply with specification requirements) and electrical drawings (electrical one-line diagram and electrical power plan with panel schedule), electrical load and lighting calculations stamped by a Professional Engineer registered in Washington State, and start-up procedures shall be submitted for review and approval.

3.0 EXECUTION

3.1 FIELD OPERATIONS/SERVICES

Provide all materials, labor, and services required to construct, operate, and maintain the Survey and Decontamination Station. Upon completion of remediation activities, the station shall be disassembled and removed.

Survey and Decontamination Station operation shall be such that cross contamination of surrounding areas does not occur.

3.2 ERECTION/INSTALLATION PROCEDURES

All installation and assembly procedures shall be in accordance with the manufacturer's recommendations. All equipment shall be installed in accordance with the manufacturer's instructions. A copy of the manufacturer's instructions shall be available for review at all times on the jobsite.

3.3 TESTING AND CERTIFICATION

Tests and inspections shall be performed to establish that all installed systems operate properly, without leaks, and conform to the SUBCONTRACTOR's design. Completed documentation confirming test and inspection results shall be maintained on site and be available for review by the CONTRACTOR.

3.4 VERIFICATION OF COMPLIANCE

Prior to use of the Survey and Decontamination Station, submit written verification that the facility complies with the specifications contained in this section, has been tested to fully verify that it functions as intended, and that the on site records have been completed.

4.0 CLEAN-UP

All unused material and debris resulting from the work shall be removed following the completion of work. The work area shall be maintained daily in a clean and orderly fashion during construction activities.

5.0 YEAR 2000 WARRANTY

Any computer application or system or equipment provided under this specification shall be Year 2000 Compliant. As used in this warranty, the term "Year 2000 Compliant" means that the Product, when configured and used according to the documented instructions will without manual intervention or interruption:

- Correctly handle and process date information before, during and after January 1, 2000, accepting date input, proving date output and performing calculations, including but not limited to sorting and sequencing, on dates or portions of dates;
- Function according to the documentation during and after January 1, 2000 without changes in operation resulting from the advent of the new century;
- Where appropriate, respond to two-digit date input in a way that resolves any ambiguity as to century in a disclosed, defined and predetermined manner;
- Store and provide input of date information in ways that are unambiguous as to century; and
- Manage the leap year occurring in the year 2000, following the quad-centennial rule. The "quad-centennial rule" means (a) if the year is divisible by 4, it is a leap year, UNLESS (b) the year is also divisible by 100, then it is not a leap year, UNLESS (c) the year is also divisible by 400, then it is a leap year.

SUBCONTRACTOR also warrants that the production/manufacture, transportation and delivery of any goods, specifications, drawings, studies or any other segment of the work to be supplied hereunder will be Year 2000 Compliant and will not be materially adversely impacted as a result of any failure to be Year 2000 Compliant.

Source of Definition: British Standards Institute

Note: CONTRACTOR may, at its option, accept a definition of "Year 2000 Compliant" that is the substantive equivalent of the definition above.

Attachment 1: Appendix D to 10 CFR Part 835 - Surface Radioactivity Values

Nuclide Surface Radioactivity Values[1]: in dpm/100 cm^2	**Removable** [2,4]	**Total** (fixed + removable)[2,3]
U-nat, U-235, U-238, and associated decay products	1000	5000
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	20	500
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	200	1000
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.[5]	1000	5000
Tritium Organic Compounds; surface contaminated by HT, HTO, and metal tritide aerosols.	[Reserved]	[Reserved]

1. The values in the appendix apply to radioactive contamination deposited on but not incorporated into the interior of, the contaminated item. Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- beta-gamma-emitting nuclides should apply independently.

2. As used by this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

3. The levels may be averaged over one square meter provided the maximum surface activity in any area of 100 cm^2 is less than three times the value specified. For purposes of averaging, any square meter surface shall be considered to be above the activity guide G if: (1) From measurements of a representative number n of sections it is determined that $1/n \bullet {}_nS_i \bullet G$, where S_i is the dpm/100 cm^2 determined from measurement of section I; or (2) it is determined that the sum of the activity of all isolated spots or particles in any 100 cm^2 area exceeds 3G.

4. The amount of removable radioactive material per 100 cm^2 of surface area should be determined by swiping the area with dry filter of soft absorbent paper, applying moderate pressure, and then assessing the amount of radioactive material on the swipe with an appropriate instrument of known efficiency. (Note -- The use of dry material may not be appropriate for tritium.) When removable contamination on objects of surface area less than 100 cm^2 is determined, the activity per unit area should be based on the actual area and the entire surface should be wiped. Except for transuranics and Ra-228, Ac-227, Th-228, Th-230, Pa-231 and alpha emitters, it is not necessary to use swiping techniques to measure removable contamination levels if direct scan surveys indicate that the total residual surface contamination levels are within the limits for removable contamination.

5. This category of radionuclides includes mixed fission products, including Sr-90 which is present in them. It does not apply to Sr-90 which has been separated from other mixed fission products or mixtures where the Sr-90 has been enriched.